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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/637,766	08/11/2000	Sergey Lamansky	10020/20701	7827

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EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
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1774

6

DATE MAILED: 03/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

**Office Action Summary**

Application No.

09/637,766

Applicant(s)

Sergey LAMANSKY et al.

Examiner

M. Yamnitzky

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08/11/00, 12/08/00 and 01/08/02.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- 15) ☒ Notice of References Cited (PTO-892)                      18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 & 5                      20) ☐ Other:

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1. The disclosure is objected to because of the following informalities:

The top margin of each of pages 2-12 of the specification is too small, resulting in the inadvertent deletion of text when holes were placed in the top of the pages for assembly in the application file.

The sentence bridging lines 12-13 of page 2 is grammatically confusing.

Appropriate correction is required. Substitute pages, meeting the requirements set forth in 37 CFR 1.52, are required for pages 2-12.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 579 151 A2 (Moore et al.) or EP 0 757 088 A2 (Enokida et al.).

Aluminum chelates according to Moore et al. having the formula shown in the abstract wherein n is 1 and L is -R or -Ar meet the limitations of the organometallic compound required by claim 1. As taught by Moore et al., these aluminum chelates are for use in the luminescent layer of an organic electroluminescent device. Prior art examples 28 and 29 are examples of specific aluminum chelates meeting the limitations of the compound required by claim 1.

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Gallium complexes according to Enokida et al. having the formula shown in the abstract wherein L is a substituted or unsubstituted alkyl group, a substituted or unsubstituted cycloalkyl group, or a substituted or unsubstituted aryl group meet the limitations of the organometallic compound required by claim 1. As taught by Enokida et al., these gallium complexes are for use in the light-emitting layer of an organic electroluminescent device. Prior art device example 3, which comprises a light-emitting layer comprising the gallium complex of formula (3) as shown on page 6 of the prior art, is a specific example of a device meeting the limitations of claim 1.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

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6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forrest et al. (US 6,310,360 B1) in view of Maestri et al. ("Photochemistry and Luminescence of Cyclometallated Complexes", 1992).

Forrest et al. disclose an organic electroluminescent (EL) device including an emissive layer comprising  $\text{Ir(ppy)}_3$  as a sensitizer.  $\text{Ir(ppy)}_3$  is an organometallic compound comprised of a metal bound to a mono-anionic carbon-coordination ligand.  $\text{Ir(ppy)}_3$  does not meet the limitations of the organometallic compound required by present claim 1 because it contains more than one carbon-coordination ligand. However, while disclosing  $\text{Ir(ppy)}_3$  as a specific example of a sensitizer for the emissive layer of an organic EL device, Forrest et al. teach that other cyclometallated organometallic compounds having a metal selected from metals such as W, Pt, Au, Ir and Os may be used instead of  $\text{Ir(ppy)}_3$ . For example, see column 9, lines 1-50.

Organometallic compounds comprised of a metal bound to a single mono-anionic carbon-coordination ligand were known at the time of the invention. Further, such organometallic compounds in which the metal is divalent platinum were known. Maestri et al. teach that anionic  $\text{Pt(ppy)(Cl)}_2$ , which is an organometallic compound comprising divalent platinum bound to a single mono-anionic carbon-coordination ligand (i.e. ppy), is luminescent at room temperature as a solid, and teach that the lowest energy excited state for the compound is a MLCT state. See the first paragraph on page 48. Also see p. 18, Table 2 on pp. 28-31 (especially the data for  $[\text{Ir(ppy)}_3]^{3+}$  on p. 29 and for  $[\text{Pt(ppy)(Cl)}_2]^+$  on p. 31), the paragraph bridging pp. 35-36 and the "Conclusion" on pp. 61-63.

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One of ordinary skill in the art at the time of the invention would have been motivated to look to known cyclometallated organometallic compounds for use as sensitizers in Forrest's organic EL device. One of ordinary skill in the art at the time of the invention, having knowledge of the teachings of Maestri et al., would have reasonably expected anionic  $\text{Pt}(\text{ppy})(\text{Cl}_2)$  to be useful as a sensitizer in an organic EL device such as taught by Forrest et al. because the platinum compound is luminescent at room temperature as a solid, has the same carbon-coordination ligand as the iridium compound, undergoes MLCT excitation as does the iridium compound, has a  $\lambda_{\text{max}}$  absorption similar to that of the iridium compound, and has a  $\lambda_{\text{max}}$  emission similar to that of the iridium compound.

7. There is no evidence of record to establish common ownership between the subject matter as disclosed in the '360 patent to Forrest et al. and the presently claimed invention. Office records indicate that the present application is subject to assignment to one entity while the '360 patent is subject to assignment to two entities. Absent evidence of common ownership, the '360 patent is available as prior art under 35 U.S.C. 103(a) through 35 U.S.C. 102(e).

8. Miscellaneous:

In the last line of claim 1, "monanionic" should read --mono-anionic--.

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9. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Sano et al. (5,779,937) disclose chelates for use in an organic EL device, the generic formula for the chelate encompassing organometallic compounds within the scope of the organometallic compound required by claim 1 (the prior art generic formula wherein each of X and Z represents carbon).

Thompson et al. (6,303,238 B1) is earlier work by some of the present applicants pertaining to the use of phosphorescent dopants in organic EL devices.

10. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (703) 308-4413. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax numbers for Art Unit 1774 are (703) 872-9311 for official after final faxes and (703) 872-9310 or (703) 305-5408 for all other official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (703) 872-9041.)

MRY  
03/15/02



MARIE YAMNITZKY  
PRIMARY EXAMINER

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